

GENERAL REPORT
UPON THE
SANITARY STATE
OF
CLERKENWELL
FOR
1856.

BY
J. W. GRIFFITH, M.D., F.L.S., &c.
MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS, PHYSICIAN TO THE FINSBURY
DISPENSARY, AND MEDICAL OFFICER OF HEALTH FOR CLERKENWELL.

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GENERAL REPORT.

ONE of the duties of Medical Officer of Health is to prepare a report upon the sanitary state of his district, showing how far that state may be susceptible of improvement, and the best means by which such improvement can be effected.

In the present report I shall attempt to accomplish these objects ; and I may remark that there cannot be a more pleasing task than this, which concerns the very existence, as also the well-being and happiness, of the large number of human beings dwelling in this densely populated and poor district, some of whom are living in a state of misery and wretchedness not to be surpassed, if equalled, in any part of the great Metropolis—nay, I might truly say, of Europe.

I shall examine, then, the general sanitary state of the district or parish of Clerkenwell, reviewing its principal conditions ; and shall attempt to show how these conditions exert their influence upon the social and sanitary state of the district.

The “Nuisances Removal Act” and the “Local Management Act” will, I believe, be found to constitute two of the most important Acts which have ever been framed for improving the sanitary and social conditions of the people. That the two latter are intimately connected, there can be no question ; for it is evident that those who are living under circumstances in which they are deprived of the ordinary elements of health and comfort, cannot be expected to be satisfied and happy, nor can they be expected to preserve those relations to their fellow-creatures which are essential to their own welfare, and to that of all around them.

The Vestry, to whom the responsible duty of carrying out the powers of the Acts has been entrusted, consists of a body of gentlemen whose labours are voluntary and honorary, and who therefore well deserve the esteem and thanks of the inhabitants.

The duties of the Vestry are most important. We shall see that in many respects the sanitary conditions under which many of the poorer classes are living are very defective. These classes have not the means of remedying them, but the Vestry has this power ; so that, excepting in matters of luxury, the poorer classes shall enjoy the same sanitary advantages as the rich.

It may appear, hereafter, that I have entered upon the consideration of details relating to diet, &c., not usually treated of in sanitary reports. These are, however, too important to be omitted.

BOUNDARIES OF THE DISTRICT.

Along the entire *Northern* boundary is the parish of Islington; on the *East*, parts of Islington and St. Luke's parishes; on the *South* are St. Sepulchre's and part of St. Andrew's, Holborn; and on the *West*, are part of St. Andrew's and St. Pancras. The Northern boundary line does not coincide with streets, excepting South-street and Sermon-lane, Pentonville, the intervening Northern boundary nearly following a line drawn from one to the other.

The Eastern boundary runs from Sermon-lane down the Liverpool-road, High-street, Islington, Goswell-road, and Goswell-street, to the corner of Wilderness-row. The Western boundary includes a portion of the Caledonian-road, extends beyond North-street, across Battle-bridge to the Bagnigge-wells-road, down which it extends to Lower Calthorpe-street, a portion of which it includes, with most of the House of Correction; across Phoenix-place and Dorrington-street, to the site of the Fleet Ditch, the site of which it follows to beyond the site of Peter's-lane.

The Southern boundary is very irregular, following, on the East, Wilderness-row; but it cannot be fully described without reference to a map. It includes Eagle-court, and the site of Peter-street.

The district is divided, under the Local Management Act, into five wards. No. 1 includes that part north of the New-road; No. 2, that western part bounded on the north by the New-road; on the east, by Amwell-street, and Upper Rosoman-street, and on the south by Exmouth-street, the south-eastern wall of the House of Correction, and Dorrington-street. No. 3 is bounded on the north by the New-road, on the west by the eastern boundary of the No. 2 district, and on the south by Spenceer-street, and Myddelton-street. The districts Nos. 4 and 5 are separated by Pereival-street, and a line running down St. John's-street to Aylesbury-street, through the latter, across Clerkenwell-green, and through the new street leading to Hatton-wall.

The boundaries of the divisions or sub-districts adopted by the Registrar General are different from the above. Thus, the No. 1 (south or St. James's district) is bounded on the north by a line running through Bath-street, Coppice-row, Bowling-green-lane, Corporation-lane, and Percival-street. No. 2 (the west or Amwell district) is bounded on the north by the New-road and Penton-place; on the east by Amwell-street and Rosoman-street; and on the south by the northern boundary of district No. 1. The 3rd (north or Pentonville district) is bounded on the south by the New-road and Penton-place. No. 4 (the eastern or Goswell district) is bounded on the north by the New-road; on the south by Corporation-lane and Pereival-street; and on the west by Amwell-street and Rosoman-street.

The area of the district is 380 acres. Its circumference is $3\frac{1}{2}$ miles, nearly; its greatest length rather more than one mile; and its greatest breadth rather more than half a mile.

SOIL.

The soil consists of gravel and clay, with chalk some 200 feet below the surface. The clay soil preponderates in the northern portion of the district, the gravel in the southern.

LEVELS.

The elevation of the district is, on the whole, high—considerably higher than that of most of the other districts of the Metropolis. The level of the northern boundary varies from about 64 feet above the level of the sea on the west, to 126 feet on the east; the eastern boundary, from 126 feet at the north, to 66 feet at the south; and the western boundary, from 64 feet at the north, to 31 feet at the south. The lowest parts of the district are near the site of Peter-street (31 feet), Dorrington-street (47 feet), and the Bagnigge-wells-road, opposite Wharton-street (47 feet).

POPULATION.

The population in 1831 was 47,634; in 1841, 56,799; in 1851, 64,778. So that, at the end of 1856, it may be assumed as between 60,000 and 70,000; for, at the above rate of increase, it would be 69,960. It is, however, probably less than this in reality, for many of the houses have been pulled down, and not rebuilt, in the neighbourhood of Victoria-street.*

The inhabitants are mostly engaged in manufacture, especially watch-making, the manufacture of jewellery, and in the accessory branches of these arts; but several of the inhabitants keep large industrial establishments, in which many hands are employed, such as distillers, soap-boilers, brewers, timber merchants, brass-founders, tobacco manufacturers, &c. These, with clerks in the City, and the ordinary shopkeepers, form almost the entire of the population. Hence the character of the population has materially depreciated since the time when Sir James Edwards, Lady Percy, Sir William Banks, Sir Richard Chiverton, Lady Wright, Sir John North, Sir William Palmer, the Earl of Aylesbury, Bishop Burnet, Dr. Adam Clarke, Dr. Johnson, John Weever, &c., resided there; and the value of the property in the neighbourhood has depreciated also.

The inhabitants being almost entirely engaged in manufacture, the number of poor in the district is large: these principally occupy the southern portion. Among them are a considerable number of costermongers. These peculiar people seem to belong to a bygone age. They acknowledge none of the laws of decency or social happiness; they live in the midst of dirt and filth, with which they fill the surrounding neighbourhood; they use the most foul and unmeaning language; they insult every one who approaches their dens; they are completely intractable in sickness; they never join the army; they supply a large proportion of the thieves of the Metropolis, and the greater portion of the "ticket-of-leave" men. I do not wish it to be understood that these people are beyond reform. They spend the least possible money in rent, and hence they live in the most wretched hovels, quite unfit for human habitation. The other sanitary conditions under which they are placed are equally bad. If this state of things were remedied, they might take more interest in themselves and all around them.

The number of inhabitants per acre is about 180, or somewhat less, con-

* The sub-districts of the Registrar General, arranged according to the number of inhabitants, stand thus: St. James's, Amwell and Goswell-street (nearly equal), and Pentonville.

sidering the number of individuals who have been compelled to evacuate the houses pulled down in the site and neighbourhood of Victoria-street.

As the number of persons occupying an acre exerts considerable influence upon their mortality and social habits, it may be interesting to examine the following table, showing the number of persons living in the various districts of the Metropolis on an acre in 1851. Probably the proportion in the several districts has not materially altered, although the absolute numbers have so.

POPULATION PER ACRE.

Lewisham	2	Newington	103
Wandsworth	4	Marylebone	104
Hampstead	5	St. Olave	114
Camberwell	12	Bethnal Green	118
Hackney	14	London, City	128
Kensington	16	St. Saviour	142
Poplar	16	Shoreditch	169
Greenwich	18	Clerkenwell	170
Rotherhithe	20	St. George's, Southwark	183
Islington	30	Whitechapel	196
Lambeth	34	St. George's in the East	199
Paneras	61	West London	212
Chelsea	63	St. Giles	221
St. George's, Hanover-square ..	63	St. James's, Westminster	221
Bermondsey	69	Holborn	237
Westminster	71	St. Luke's	245
St. Martin's in the Fields	80	Strand	255
Stepney	88	East London	290

HOUSES.

The number of houses in 1851 was 7549, corresponding to eight persons to each house. To have preserved this relation in regard to the increase of population, 647 new houses should have been built in the district by the end of 1856. There can be no question, however, that very few houses have been built in the district, but many have been pulled down: hence the inhabitants must live in a more crowded state than in 1851. Many of the houses are in a most unsatisfactory condition, especially those in the courts, being unprovided with back windows or back yards, and being walled in by higher houses, so as to be almost entirely excluded from ventilation, which is still further prevented by the courts being closed by a wall at the end. Many of the houses are also extremely dirty, the walls of the rooms being covered with the stains of destroyed vermin; the drainage is either none or very imperfect; frequently there are no privies, and when these exist, the soil is retained in foul cesspools, evolving the most offensive odours; and sometimes there is but one privy for 50 or 100 persons. In some of the houses a donkey is kept in a lower room, whilst a family occupies the room above.

Were I required to give a rough estimate, I should say that not more than one-third of the houses are in a satisfactory state in regard to the above particulars.

Many of the houses are quite unfit for habitation, even were they cleaned and many of the above deficiencies supplied, being too small and confined.

It seems as if there were some difficulty in general in providing proper dwelling-houses for the poorest classes. The model lodging-houses and model buildings are beyond the reach of the very poor. What we require is

the provision of two rooms, at a rent of between 1s. and 2s. per week. Why does not some philanthropic individual organize a company to provide these? If the present dwellings of the poor were in a more perfect sanitary state, more rent would be obtained than at present, even if the charge were less; for the interruption to employment, occasioned by sickness, death, and burials arising from their wretched condition, would be done away with. One small model lodging-house exists in the district; but the rent of the apartments (5s. 6d. and 6s. per week) is too great for the poor to pay.

The gross estimated rental of the district is £260,278; the rateable value £196,919; and the poor-rate in 1856 was 2s. 9d. in the pound, whilst this year it is 3s.

DRAINAGE.

The general street drainage of the district is, on the whole, good; but many streets have no sewers, and numberless houses do not drain into the sewers, even when close at hand. This is particularly the case in the lower or southern portion of the district, where the poorer inhabitants live, where the level is the least, where the crowding is greatest; and, hence, where good drainage is of the most importance.

WATER-SUPPLY.

In the district there are several shallow wells, and a few deep wells entering the chalk.

I need scarcely remark that the water derived from the former is cold, very hard, containing, mostly, more than 100 grains of saline matter in a gallon, brisk and sparkling from the large amount of carbonic acid present, holding carbonate of lime (chalk) in solution. The clearness, coldness, and briskness of the shallow-well water has always given it the preference as a drinking water. These qualities should not, however, be regarded, since it has been shown that the pump-water of the Metropolis is almost invariably contaminated with the contents of the sewers which has escaped into the wells. The idea of drinking the excretions of other human beings is sufficiently repulsive to counterbalance the attractive physical qualities of the pump-water; but, in addition to this, it has been shown, in several instances, that the cholera has virulently attacked those who have drunk pump-water, in which this contamination has been shown to have occurred, whilst those who have used an uninfected water have escaped.*

Moreover, the shallow-well water receives the drainage-water of the Highgate Cemetery, of numerous burial-grounds, and of the innumerable cesspools in this district. The clay rises high at Highgate-hill, so that the rain-water which percolates the soil on the London side of the Cemetery

* The injurious effects of water containing sewage has been otherwise strikingly shown in the production of this fearful malady. In 1851, when the cholera prevailed in the Metropolis, it was found in a large number of persons (about one-fifth of the inhabitants), living side by side, as nearly as possible under the same circumstances in every respect but one—viz., the water-supply being derived from two sources—that the mortality among those who drank the Thames water, mixed with the sewage of the Metropolis, suffered three and a half times as great mortality as those who drank the Thames water taken at Thames Ditton, *i.e.* free from the sewage; and several other well-marked instances of the same kind have been observed in other localities.

flows towards the metropolis. This source of contamination might have been prevented by forming the Cemetery on the northern side of Highgate-hill, instead of on the southern slope, where it at present exists.

The pump-water also becomes contaminated with the residual liquors of manufacturing processes. These are sometimes strongly acid, and soon eat their way through the sewers. In one recent instance in this district, the water of a pump was poisoned by contamination with the residual liquors of a galvanized iron manufactory; and if this pump had been situated in a public situation instead of a private yard, many persons would have been poisoned.

The deep-well water is not accessible to the inhabitants generally, and therefore requires no notice.

The advantages, then, of the pump-water, are clearly overbalanced by the disadvantages. Its use, therefore, should be abandoned except for watering the roads, &c.; and should epidemic diarrhœa or cholera prevail, the pumps should at once be locked.

The New River water forms the general supply of the district. This, although void to some extent of the attractive qualities of the pump-water, being less cold and less brisk, from containing a smaller amount of carbonic acid and carbonate of lime, is, in every essential respect, superior to it. Thus the higher level of the stream prevents contamination from sewers, &c., and it is much softer. It contains 21·78 grains per gallon of solid residue, of which 20·81 are inorganic, and 0·96 are organic. This amount of organic matter is as small as possible—it is scarcely beyond the limits of error of experiment. As obtained from the New River reservoir, into which it is received after filtration through the beds of sand and gravel in the new filtering works, or from any of the cab-stand taps, it is perfectly clear and sparkling—very different in appearance from the unfiltered water found in the river itself; and it forms, I believe, an unexceptionable supply as regards quality.*

* In a report to the Board of Health, bearing the date of the present year, the New River water is still complained of as impure. Now, I am in no way whatever interested in the New River Company, but I may unhesitatingly repeat, that the water supplied by this company is of unexceptionable quality. When the cholera has prevailed in the Metropolis, whenever the impure Thames water, mixed with the sewage, has been drank, there the mortality has been great, and the same applies to the pump-water; whilst, whenever the New River water has been used, there the mortality has been small or none. And why should we desire absolutely pure water? Is any article of diet absolutely pure? Does not half-a-pint of beer or a slice of the finest bread contain millions of Fungi? Does not every one's mouth abound with living Algæ or Fungi? What are the Entomostraca but minute lobsters? They die as soon as they enter the stomach; when boiled they become red, and they are undoubtedly nutritive. What are the Diatomaceæ and Desmidiaceæ but unicellular organisms, which, when united, we swallow by millions in a leaf of water-cress or any other vegetable or fruit? Does not the very air we breathe abound in the germs of the lower plants and animals? Objection has been taken to the use of water containing microscopic animals and plants upon two grounds: first, that the organisms exert a noxious action upon the body; and second, that the organisms indicate the existence of noxious decomposing organic matter in the water. The first ground is entirely unworthy of consideration. There is no instance known where a microscopic organism, capable of living in water, taken into the body will exert any injurious action. With regard to the second ground, it is true that, wherever there is spontaneously decomposing organic matter, there are abundance of microscopic beings. But there may be an abundance of these beings also where there is no decomposing organic matter present. Distilled water, when exposed to the air for some time, will abound in these beings. The minute Algæ and Fungi,

But when we consider the quantity of the supply, it is miserably deficient. In several of the courts, where hundreds of people live, the supply is solely derived from one tap, the yield of which lasts for half or three-quarters of an hour in the morning. To this the inhabitants have to run, leaving their occupation, and collecting their share of this indispensable commodity, in vessels of whatever kind may be at hand—even chamber utensils. The water is then kept in the close, ill-ventilated tenements which they occupy, until it is required for use. The fault lies here, indisputably, with the landlords, who will not provide a reservoir of proper capacity, and with the Vestry, who will not or have not compelled the landlords to do so.

This very important point requires urgent attention. How can the poor be clean without water to wash themselves and their clothes? Consider the foul state in which the linen of the sick poor must be who have but so scanty a supply of water for washing purposes. Consider the great facility given to the spread of infectious diseases where the clothes, saturated with the morbid poisons, are necessarily worn by the convalescent, to diffuse the infection among rich and poor who may perchance come near him.

Now where so insufficient a water supply exists to the houses, we might expect that Baths and Washhouses would supply the deficiency. But there are none in the district! Hence, no wonder at the dirty state in which a large number of the inhabitants are met with.

In one of my earliest weekly reports to the Vestry, I proposed the provision of public washers—*i.e.* poor washerwomen, employed by the parish to wash the clothes of those who were incapable of doing this for themselves, or of paying others to do it. There can be no question that such functionaries would greatly contribute to control the diffusion of zymotic diseases, and to prevent many parentless families from being thrown upon the parish for their support.

whose spores always exist in the air, will fall into the water, and will there vegetate upon carbonic acid and ammonia absorbed from the atmosphere. The germs of the Infusoria will next succeed, and will subsist upon the minute Algæ. In this way we obtain a complete Flora and Fauna of microscopic beings. If there be organisms in decay, so much the more will all thrive and increase. So that—and here is the important point—the existence of these beings indicates either that the water has been long and freely exposed to the air, or that it abounds in decaying matter. In the first case, the large number will depend upon the slow increase during a long period of exposure to air, where food is scarce. In the second, to the rapid growth and multiplication in midst of an abundant supply. Now, we have almost conclusive evidence that it is the organic matter, existing in solution and in a state of decomposition, which produces or favours the spread of zymotic disease; and as abundance of minute organisms may exist without any organic matter in decay, the mere presence of minute organisms cannot be held conclusive that the water abounds in decaying organic matter, or that it is unwholesome. The New River water contains the smallest possible amount of organic matter, no more, or even less, than the Plumstead water, purified by Dr. Clark's process, the most perfect applicable on the large scale. Hence, when we find one or two of these organisms—for they are extremely few and very difficult to discover—we are led to the conclusion, consistent with the fact of the small amount of organic matter shown to be present by chemistry, that these beings indicate the free exposure of the water to the air. Now, having shown that the presence of these organic beings is merely worthy of consideration as regards their indication, for they themselves are innoxious, and the small quantity of organic matter present contradicting the idea that they are numerous, we have every reason to be satisfied with the water. The organisms found in the New River water are also almost entirely unicellular Algæ, which, it is well known, are the inhabitants of the purest waters.

MANUFACTORIES.

The district of Clerkenwell contains many of these which are great nuisances, as well as being injurious to health, from the processes adopted rendering the atmosphere impure. Several of them have lately been introduced into the neighbourhood, which should not have been allowed. Manufactories are generally situated in the poor parts of neighbourhoods where land is cheap ; they bring an extra number of poor into the neighbourhood, by which the air is polluted ; but they pollute it still further by the large quantity of smoke sent off, the hurtful fumes evolved in many of the processes, and by the large amount of noxious residual matters of the manufacture which are not properly disposed of. One of the most abominable manufacturing places, exceeding anything that the imagination could picture, existed until very recently in Allen-street, Goswell-street, being known as Bailey's-yard. Here, the fœtid guts of oxen, &c., were brought ; their foul contents poured at once into the sewer, without the addition of water, the guts macerated in water, and the stinking skins hung up to dry. The whole yard was filled with portions of foul matter, larger quantities of which were thrown upon a dung-heap exposed to the sun ; the ground was saturated with the filth ; myriads of blow-flies were hovering over the whole, and the stench evolved was truly frightful. The foul matters remaining in the sewer gave off the same noxious effluvia as those left in the yard ; these escaped at all the gully-holes of the surrounding neighbourhood, to the intense annoyance of the inhabitants, who were mostly poor. But what was the consequence—or, if you please, call it a coincidence ? Although it did not occur in other parts of the district, here abounded cholera, low fevers, and death ! This abomination was twice brought before the Police Court, but the influence of the magistrate in no way checked it. It was only got rid of by a firm threat of indictment. And here I may perhaps be allowed to remark upon the result of bringing such a case as this before magistrates, in no way desiring to lead to the belief that these valuable public officers do not conscientiously perform their difficult and responsible duties ; but those only who are acquainted with the exact circumstances of these individual cases can judge of the extent to which the full power of the law should be exerted in order to suppress the evils connected with them. Now here was a terrible nuisance, destroying the comfort and happiness of a neighbourhood—I avoid the question of injurious to health, because it is a very difficult thing to prove direct injury to the health of an individual or individuals in such a case, and because the law is so clear that what is simply a nuisance shall be done away with. An array of witnesses—neighbouring residents, inspectors, and medical officers—testified to the truth of the abomination and its probable injury to health ; repeated applications had been made to the occupier of the premises to adopt some decisive measures for the prevention of the nuisance, but in vain, by the authorized inspectors. Here, then, was a clear case in which injury had been done to the neighbours, and the nature of the business was such that the nuisance was constant, and not occasional or accidental. And what was the punishment ? A threat of infliction of a penalty if the filth was not removed within a certain number of days. This threat caused the removal of the filth, but not of the nuisance, for the whole was as bad as before in a few days. A second summons was taken out. It was shown that the premises had been in

as bad a state since the first summons as at the time this was taken out. A new array waited upon the magistrate, with the same result as before. Now it appears to me that the infliction of the full penalty would at once have prevented the nuisance, and would have been thoroughly just. It appears to me that in all cases where an array of witnesses, unconnected with each other, and whom it would be unwarrantable to assume had conspired to injure an innocent individual, appears before a legal tribunal and testifies satisfactorily to the existence of a nuisance—where also it has been proved that due notice for its removal had been served by the legal authority—justice can only be done by at once inflicting the full penalty. If this were done, a great deal of annoyance and misery would be prevented; and this, it appears to me, is the meaning and object of the law on these matters.

There are many nuisances which will require to be brought before the magistrates ere they will be done away with; and it is to be hoped that the full power of the law will be at once exerted for their suppression.

A large amount of smoke is poured into the atmosphere from the numerous chimneys connected with the manufacturing establishments. I believe that in one instance only is any means of consuming the smoke adopted.

A question frequently arises as to whether a gas or vapour evolved during a process of manufacture or trade is a nuisance, or injurious to health, or not. I shall make a few remarks here upon the general action of these emanations upon the body, for ingenious but false analogies are often advanced with the view of showing that palpable nuisances are not so, and that they are not injurious to health. I need not remark, that all vapours and gases not naturally existing in the air must exert some action tending to modify the natural state of the vital processes. If these vital processes be strong—if the body be very healthy—the modification or interference may be so slight as not to produce any perceptible injury; especially if, also, the locality in which they are evolved be open, and the vapours be freely diluted with air. Still some unnatural modification *must* be produced, because we cannot imagine imperfections to exist in the natural constitution of the air, and because we find that in a man living in a pure and natural air, defective sanitary arrangements being absent, life lasts beyond the average period. Now vapours, gases, and effluvia, or emanations in general, in regard to their action, may be divided thus; viz., into those which are—

1. Directly poisonous; and those which are—
2. Indirectly poisonous; acting by—
 - a. displacing pure air;
 - b. exerting a corrosive or irritating power; or
 - c. by exerting a peculiar zymotic action upon the blood.

1. Examples of directly poisonous emanations are met with in the (carbonic acid) gas given off from the fermenting vats of brewers, and in the gases given off from sewers, foul privies, &c. Brewers' premises should therefore be large and well ventilated; and the gaseous contents of sewers, &c., should be allowed freely to escape in open places, away from houses; or, what is better, these emanations should be drawn from the sewers and burnt.

2. (a.) All emanations displace air, except those few which are capable of combining with or dissolving in the air. Hence they deprive those who breathe air containing them of the natural amount of pure air; for the lungs only admit a certain quantity at each inspiration, and if part of this consists

of even a neutral compound, or of any kind of gaseous matter not corresponding in composition with pure air, the naturally required proportion of air cannot enter the lungs at each breath, the changes produced by the respiration of the body cannot be effected, and the health must suffer. Another evil resulting from the mixture of any effluvium with air is this: if the air contain any zymotic poison, as that of scarlet fever, measles, or typhus—if this air had otherwise its natural constitution and were abundantly present, the poison would be so diluted or decomposed as to be incapable of producing infection, which cannot occur if it be mixed with foreign compounds.

It is a common statement that the workmen engaged in manufactories of various kinds do not suffer in their health; hence the emanations evolved are said not to be injurious. Now it is a very difficult matter to procure satisfactory evidence that such emanations are not injurious, because the sanitary conditions under which the workmen live are complicated. A man may live to be sixty years of age whilst engaged in a manufactory; but before we could admit this to be proof of the innoxious quality of the emanations, it should be shown that this man in all probability would not have lived to be more than this age; in fact, his life might still have been shortened. Manufacturers are very fond of adducing isolated instances of this kind when found fault with for poisoning the air, but they prove nothing to the point.

There is, however, a reason why those engaged in many manufacturing processes should suffer less than the neighbouring inhabitants. The premises in which they work are generally large; the men strong, and in active exercise, and their occupation laborious; and as a man under these circumstances breathes more frequently and fully than those who are sedentary or less actively engaged, they obtain a full supply of the air required, in spite of the mixture of a certain proportion of foreign matter. But when the premises are confined, and the workmen crowded, there is no question that they themselves suffer.

2. (b.) Corrosive and irritating emanations are in general so destructive to property, that their influence upon health cannot form the question: they are indisputable nuisances in a crowded neighbourhood, and should at once be done away with.

2. (c.) Some emanations exert a zymotic action (from *Ζυμώω*, “to ferment”), a term denoting a change by which some morbid poison or form of decomposing matter, brought into contact with the human body or organic substances, gives rise to the production of a new quantity of the same or some similar matter, which interferes with the natural vital processes—poisons the blood, or alters the composition of the organic substance. An instance of the former is met with in smallpox, or any eruptive febrile disease; of the latter, in the action of yeast upon any fermentible liquid, or of foul air upon meat, in hastening its decomposition.*

Now the most minute portion of the virus or poison of smallpox taken from a pock, when applied beneath the skin of a human being, will poison the blood, and from this will be thrown out thousands of new pocks, each capable of yielding myriads of minute portions, capable of reproducing the disease. Or, to put this matter in another light, the poison has grown, just as a little yeast added to a liquid susceptible of fermentation will grow, and reproduce pounds of new yeast. Now the poison of smallpox is thrown out

* Epidemic, endemic, and infectious or contagious diseases are called zymotic, because the poisons which produce them act in this manner.

from the blood, just as the yeast is thrown out by the fermenting liquid : both are visible and tangible.

But several of the zymotic poisons are gaseous and invisible, as those of typhus and measles ; yet they are as surely present, and capable of infecting a sound body.

The emanations from decomposing animal and vegetable matters are also capable of exciting a zymotic action upon the living body, and of poisoning the blood, and even of acting upon dead organized bodies. Thus, breathing an atmosphere loaded with decomposing animal and vegetable matters will induce a low febrile state, resembling that of infectious typhus. Milk will not “keep” when in a putrid atmosphere, and meat will rapidly putrify under similar circumstances. Even the emanations from living human beings, especially when concentrated as in crowded habitations, will produce a morbid state of the body, and will especially favour the spread of infectious diseases ; so altering the blood as to render it in a most favourable state for the action of the peculiar poisons of typhus, scarlet fever, &c., and producing a high rate of mortality when they occur under these circumstances.

Hence these diseases abound where such emanations are present ; hence, also, these diseases rage with great mortality among the poorer classes. We might be sure, from approaching a “mob,” that zymotic diseases would cause great mortality among its members ; for the fætid emanations evolved surely indicate that their blood must be already prepared for the luxuriant growth and propagation of these maladies.

In addition to the zymotic action of these emanations, their very presence indicates that the air is impure, and not capable of producing the necessary changes in the blood by respiration. Moreover, they seem to form a nidus for the retention of the infectious zymotic diseases ; for a new family occupying a room in which they are perceptible, and in which some one has suffered from one of these diseases, will surely find the poison therein in a sufficiently concentrated state for the propagation of the disease. The evolution then of emanations in crowded localities, such as this district, should be put a stop to as soon as possible ; and we shall see presently that the law has given the Vestry full power to do this.

There are some emanations, however, which displace no air, which have no corrosive power, which exert no zymotic action, and which, from being almost universally diffused in the natural air, and being associated with pleasing scenes, are generally considered agreeable—such as perfumes—are not injurious to health, unless present in such quantity as to excite headache and nausea, or destroy the appetite, &c., and so interfere generally with the nutritive functions. They are extremely volatile and diffusible, a minute quantity impregnating a very large amount of air : thus, a grain of musk will evolve its peculiar odour for years without losing any appreciable weight.

It is commonly supposed that if a nuisance be of noxious quality, it is an easy matter for the medical officer to prove it ; but the fact is quite otherwise, for this would often necessitate residence upon the exact spot, and the uninterrupted observance of numerous local circumstances and influences entirely beyond reach in practice. It would require the presence of an extremely poisonous effluvium to produce sudden and overwhelming pestilence and death, rendering its relation to these obvious and clear. Again, a very impure air may be breathed, and may give rise to a vast amount of disease, accompanied with but little mortality, because other sanitary conditions may

be carefully attended to. The districts in which the mortality is estimated may be large, so that the great mortality of the noxious parts may be counterbalanced by the small mortality of the healthy parts, and thus the division may appear healthy on the whole, and so on. It was only by the most exact and careful investigation, under the assistance of almost unprecedented means and opportunities, that the excess of mortality from cholera in that part of the population of the Metropolis which suffered from drinking sewage water was brought to light and attributed to its true cause. Yet, from our knowledge that pure air is provided by nature for us, and that effluvia have a general noxious action, we may be sure that they are injurious to health.

But we need not wait for proof by death. Whatever is a nuisance shall be done away with, says the law. We need not waste time in searching for increased mortality, which we know must exist, but we can and must do away with whatever may threaten human life. This is very satisfactory and proper; and it so happens that in very many instances there are simple and comparatively inexpensive means of preventing any nuisance, if once the order be given that it shall be done.*

SLAUGHTERHOUSES.

There are forty-six slaughterhouses in the district. They were all examined prior to their being licensed last autumn. Some of them are small, too much imbedded among inhabited buildings, and, in fact, makeshifts. Over one is a room used as a workshop, which from mis-information was supposed not to be so applied at the time the license was granted.

COWHOUSES.

There are 540 cows kept in the district; 256 in the northern half—bounded on the south by Dorrington-street, Exmouth-street, Myddelton-street, and Spencer-street; and 284 in the southern half. The cows are mostly in good condition; although many of the cowhouses are ill-ventilated, too crowded, the paving rotten and pervious to the dung and urine, and the drainage otherwise imperfect. In some of the cowhouses and cowyards pigs are kept; and in two or three, the dung and grains are kept in too close proximity to inhabited rooms. The cow-premises are very great nuisances, wherever they exist. The dung is not carted away sufficiently often, but lies undergoing decomposition, so that when the under portions are stirred up for removal, the stench evolved is most noxious and offensive. Again, large quantities of grains are kept upon the premises; these “heat” and ferment, becoming extremely sour and offensive; and when the lowest portions are removed, the smell is abominable, particularly during the warm weather. The dung and grain pits should be paved, and made sloping at the bottom towards a drain; the dung either removed during the night or every day; and the large quantities of grains should not be allowed to be kept in crowded localities. Water should be laid on, so that the dung-pits may be thoroughly washed every time the dung is removed, or carts should be kept upon the

* These observations upon the influence of emanations upon health would not have been brought forward, did not manufacturers constantly assert their belief, or their professed belief, that unless all around were struck with death, or died within a year or two, these emanations were not injurious to health, and thus that causing them to be done away with or abated was unnecessary interference.

premises, into which the dung may be thrown, and carted away, without being stirred up. But the cow-premises will probably always form nuisances, so long as they are allowed to exist in the Metropolis.

CHURCHES.

In my inspection of the churches in the district I found their condition satisfactory, with the exception, however, of the state of the vaults. In the vaults of St. James's and St. John's Churches, and in those of Pentonville Chapel, many hundreds of bodies are contained in coffins, which are closely packed together. Complaints have been made regarding the existence of an offensive effluvium in Pentonville Chapel and the surrounding neighbourhood. On examination I was unable to detect this: the vaults were found in good order, and well ventilated. Yet the effluvium may have arisen from the noxious gases evolved during the decomposition of the corpses, although only perceptible at those times at which a coffin bursts from the pressure of the included gases, which was probably the cause of the effluvium in the instances alluded to. No communication exists between the air-supply of this chapel and the interior of the vaults.

The vaults of St. John's Church are very imperfectly ventilated, although no offensive odour is perceptible.

In St. James's Church the air-supply for the interior is derived from the vaults, a state of things which should not be allowed for one moment.

I regret also to state, that burials within the vaults of St. Mark's Church still continue to take place. Why should this poor and densely populated district be so far behind the other districts of the Metropolis, that burials shall still take place within it? *

In regard to the remaining of the corpses in the vaults, this should not be allowed. There should be no possible chance of the dead exerting a noxious influence over the living. The corpses should be removed to some open burial ground, and there allowed to rest and harmlessly decay.

Whilst speaking of burials, I would suggest that in all cases a stratum of charcoal should be laid at the bottom of the coffin, by which the noxious emanations may be absorbed as soon as formed, and thus every possibility of their doing injury, wherever preserved, may be prevented.

A question requiring very serious attention arises in connexion with the occupation by a family of a single room only. If a poor man gets married, he is pretty sure to have a large family of children; and at the present rate of mortality of children from zymotic diseases, several will die of these maladies. Hence, when a death occurs, the living and the dead must be together in the same room; the living must eat, drink, and sleep by side a decomposing corpse; and this in usually a small ill-ventilated room, overheated by a fire required for cooking, and already filled with the foul emanations from the bodies of the living and their impure clothes. This is an everyday occurrence in Clerkenwell, and constitutes a formidable evil; for what can be more calculated to drown the finer feelings of human nature, to harden the heart, and to favour deeds of violence and even murder, than this bringing up of childhood and youth in the immediate presence of the dead?

These fearful occurrences could scarcely be avoided even by preventing a

* By an order from the Secretary of State, issued on November 20th, at the instance of the Vestry, these burials have been interdicted.

family from living in a single room ; but they might, by insisting that no corpse shall be kept in an occupied dwelling-room, and erecting a small mausoleum, in which the dead might be safely deposited until the time for their burial might arrive.

Such a building in Clerkenwell might be erected above the large vault, between Ray-street and Victoria-street.

FOOD.

It is well known that most of the articles of food supplied by the shops are adulterated, *i.e.* they are mixed with substances not implied to exist in them under the name by which they are sold. The question of adulteration has two bearings, *viz.* :—the articles substituted may be less expensive than the pure substances, whereby a fraud is committed upon the purchaser, and as most of the articles are liable to duty, the revenue is defrauded also ; or the articles substituted may be noxious, and injurious to the health of the consumer. With the first bearing of the question I have no concern ; this belongs to the Excise ; and the latter will not occupy me long, for its importance has been greatly exaggerated. I have examined numerous samples of the different articles supplied by the shopkeepers of the district, and will comment briefly upon the results obtained in regard to the principal substances.

BREAD.

I need not state that alum has been added to the flour and bread in this, as in other districts of the Metropolis. The effects of this admixture upon the health have often been discussed ; and it has been argued very naturally that because alum has been added to bread, the injurious action of that salt will be exerted upon the body. But the subject has been very imperfectly handled, and I cannot admit the truth of this view.

When alum is mixed with flour, and the mass is wetted, the salt is decomposed, and its earthy base is rendered insoluble and totally inactive—the alum exists no more. This decomposition is produced partly by the action of the nitrogenous compounds (gluten, albumen, &c.) upon the alum, but principally by the soluble phosphates existing naturally in the flour, in quantity much larger than is sufficient to decompose the alum used.

It is the white precipitate formed in this decomposition which gives the superior whiteness to bread made from flour of whatever quality.*

* The mistakes which have been made in regard to the presence and detection of alum in bread, by those who have undertaken to enlighten us upon this matter, are remarkable. None of the published processes for the detection of alum are of any value ; and all the quantitative results have been obtained by precipitating the naturally existing phosphate of magnesia from the watery extract of bread by ammonia, and calculating the amount of alum from this, reckoned as alumina ! That alum has been used in making any sample of bread may be readily discovered. If a piece of pure bread be kept in a cold decoction of logwood for about eight hours, it will become dyed of a reddish purple or reddish brown colour ; whilst, if the bread be alumed, it will assume a bluish purple, or violet colour. When solution of alum is added to the decoction of logwood, the solution, which is yellowish red, becomes reddish purple, not bluish purple or violet. But if we add phosphate of alumina, which I have stated to be formed by the action of the soluble phosphate existing in the bread upon the alum, the solution and the precipitate become bluish purple or violet ; hence showing that the phosphate of alumina is really formed as stated.

Now the alum question has two main bearings : 1st, as to the direct action of the salt upon the body ; and 2nd, as to the effect of the alum upon the bread.

The first bearing loses its interest, after what has been stated.

In regard to the 2nd, the alum certainly renders a small portion of the nitrogenous and nutritious components of the bread insoluble and indigestible. But the amount is extremely insignificant, far too much so to be of the slightest importance.

It is commonly stated that alum is added to inferior flour, to give the bread made from it the appearance of that made from the best flour ; but alum is always added to the bread, as far as I know, in the Metropolis. No objection can be raised to the action of the alum in depriving the bread of part of its soluble phosphates, for these exist in flour in very much larger amount than in the natural type of our food, viz. milk—and hence they are not necessary in so large quantity for the perfect nutrition of the body. I believe, then, that those who indulge in the use of alumed bread may at least safely do so without injury to health.

Now, having shown why bread prepared with alum should not produce the diarrhœa, dysentery, &c., attributed to its long-continued use, let us see how the matter stands with regard to the returns of the causes of death. In the district are 70,000 persons, who consume daily alumed bread, and out of this number more than 300 die every quarter. During the first quarter of the present year, 392 persons died. Of these 115 were more than 50 years of age ; but none died of dysentery, and 2 only of diarrhœa, viz. an infant three months old, and an adult 65 years of age. Hence, I believe the supposed injurious action attributed to the use of alum in making bread must be viewed as based rather upon preconceived notions and error than upon the results of experiment and observation.

I have no intention, however, of recommending the use of alum, especially as it may serve to conceal damaged flour ; and the white appearance which it imparts to bread is no recommendation. The use of potatoes in making bread, which is often adopted, is, however, objectionable in the case of the poorer classes, who depend principally upon this article for their supply of nitrogenous matters.

ARROWROOT.

All the samples of arrowroot which I examined were genuine. I may remark that arrowroot is too often used as an article of diet for children, especially infants. A thick jelly of this substance looks very rich and nourishing ; but it cannot be compared with bread in nutritive power. It should never be used by those whose means for buying food are small ; and those who will use it may depend upon British arrowroot or potato starch being quite as good as the foreign, and it is much cheaper.

MILK.

All the samples of milk obtained from the smaller shops were more or less diluted with water ; those from the cow-keepers were not so. It is generally understood that the milk as sold is skimmed, and even diluted with water. Hence, this should be taken into account in regulating the quantity of this most important article used, especially in the case of children. Among the poor the children generally are not supplied with milk in sufficient quantity ; and the fact is not sufficiently known or acted upon, that milk is the essential food of a child, and cannot be replaced by tea or arrowroot without injury.

I may remark, while speaking of milk, that a very common error in the diet of children, is that of feeding them upon bread and butter with tea or no milk, or but a very small proportion. The more finely divided the substances used as food are, the more readily and perfectly are they acted upon by the juices of the alimentary canal, and digested; and fatty matters being difficult of digestion, the very finely divided state of the butter in milk renders this liquid of great importance in the nutrition of the body, especially where the body is growing, or where the assimilative powers are feeble. Hence, bread and butter cannot replace milk, or bread and milk, in the food of children.

In the Registrar General's tables is a column set aside for deaths arising from want of breast-milk. But why should death be occasioned by want of breast-milk? Cannot we imitate the composition of breast-milk exactly? Certainly! But the cause of death in cases thus registered is not correctly expressed. As soon as the natural supply of breast-milk is found to be insufficient, artificial food is supplied, and it is well known that in almost every instance this has no resemblance whatever to natural milk, being far better adapted for the food of a ploughman. And what is the consequence? The food is not digested, but acts as an irritant poison to the tender bowels of the infant, which throw it off by incessant diarrhœa; the child cannot be satisfied, because it receives no nourishment from the food; the body emaciates; the child starves and dies; and the column in the Registrar General's returns becomes requisite! But even the number of deaths entered in this column does not represent the true mortality from this cause, because many of the deaths are returned as occurring from diarrhœa.

The great importance of attending to the mortality of children is evident, when we recollect that not far short of one half of the total number of deaths occurs in children under five years of age.

TEA AND COFFEE.

These must be looked upon as articles of luxury; for there is not more nourishment in a pint of tea than in a piece of bread as large as the end of the finger. Their most active ingredient is the warm water, which serves to warm the body, when sufficient exercise is not taken, but at the expense of weakening the tone of the digestive organs. They contain a large amount of astringent matter, the effect of which is counterbalanced by the relaxing effect of the warm water.* The amount of the feebly poisonous alkaloid in tea and coffee is too small to exert any injurious action, but it certainly affords no nutriment. I have not examined any samples of tea, for the reasons above stated; it being also known that nothing injurious is added to this article.

Some of the samples of coffee contained a large amount of chicory, which I believe is more wholesome than either tea or coffee; and I cannot but consider that the substitution of this substance for the latter will be beneficial to the poorer classes, who will be enabled to apply the money hitherto spent upon the costly foreign articles to the purchase of really nutritive food. The adulterations of the other articles of food or luxury have no injurious effects upon health. Thus I cannot find fault with the mixture of various kinds of

* That the relaxing effects of the warm water exceed the effects of the astringent matter, is evidenced by the well-known fact, that the action of a small dose of Epsom salts will be increased by being taken in warm tea or coffee, notwithstanding the large amount of astringent matter they contain.

starch with cocoa and chocolate ; of flour and turmeric with mustard ; of sugar and water with gin ; nor of sugar and water with tobacco, &c.

On the whole, I cannot but consider the substitution of various adulterations as a move in the right direction ; and I must enter my protest against the vulgar notion, that nothing is nutritious or wholesome but what has long been in use, and is procured from abroad. In the course of a short time, as already is the case with chicory, the adulterations will be sold separately and at a very cheap rate ; and so the poorer classes will be enabled to obtain a more copious supply of food, and substitutions for the foreign articles of luxury, which are cheaper and equally desirable.

In the course of my investigations upon the adulterations of articles of food supplied to the district, I made application for samples of those supplied to the workhouse, it being well known that these are very inferior as supplied to pauper establishments in general. I regret to say, that the Guardians refused to accede to my request. This appeared to me ill-judged, for, although adulterations may be harmless, and even as nutritive as the genuine substances, their detection might ensure their supply at the cheaper and proper price.

MEAT.

The question of good or bad meat is, however, of very great importance. There can be no doubt that decomposing and diseased meat may exert very serious injury upon the body. When we recollect the effects of even the most minute quantity of the vaccine or small-pox virus, and of the subtle poison of scarlet or typhus fever, or of a wound in dissection, in interfering with the normal processes of health, we can readily comprehend how diseased or decaying meat may produce the same.

The Inspectors, as well as myself, have held communication with the City Inspectors of diseased meat, so as to be enabled to detect it. No cases of the exposure of bad meat have yet, however, been detected ; but there is reason to believe that Clerkenwell comes in for its full share of this dangerous commodity. We must therefore be vigilant.

MORTALITY.

The mortality of the district may be well shown by the following tables, in which the mortality in the various weeks and quarters of 1856 are compared with the average mortality of the same periods for the last ten years.

According to this table, there died, in Clerkenwell, in 1856, 1313 inhabitants. But this is not all : a certain number of persons from the district die every year in the general and special hospitals and lunatic asylums of the metropolis. These can only be estimated by apportioning to Clerkenwell its share of the total number of deaths in these establishments, calculated in relation to its population. In this way, 101 deaths must be added, making a total of 1414.

If the deaths had occurred in the proportion of the average of the last ten years, raised according to the increase of population, they would have amounted to 1548, so that 134 fewer than the average have occurred. I need not state how satisfactory is this ; and we have a fair right to attribute it to the generally improved sanitary condition of the district.*

* The diminution of mortality is really even greater than this, because the deaths occurring in the hospitals, &c., are not included in the average estimate, whilst they are so in the mortality of 1856.

DEATHS IN CLERKENWELL DURING THE THIRTEEN WEEKS, OR FIRST QUARTER OF 1856,
ENDING ON MARCH 29TH.

	Jan. 5th.	Jan. 12th.	Jan. 19th.	Jan. 26th.	Feb. 2nd.	Feb. 9th.	Feb. 16th.	Feb. 23rd.	March 1st.	March 8th.	March 15th.	March 22nd.	March 29th.	Total.	Births.
Deaths from all causes	22	28	27	21	19	25	24	21	15	35	25	36	33	331	551
Average of 10 years	33	32	36	32	32	29	27	30	33	29	36	32	33	414	
Small-pox .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles	1	1	1	..	..	..	..	..	..	..	..	..	..	3	..
Scarlet fever	1	3	1	2	1	1	..	..	..	1	..	1	..	11	..
Hooping-cough	3	4	1	3	4	..	2	5	..	2	2	1	2	29	..
Diarrhoea	1	1	..	..	..	..	..	..	..	..	..	..	..	3	..
Typhus .....	..	..	..	..	..	1	..	1	1	6	..	1	..	10	..
Total	6	9	3	5	5	2	2	6	1	9	2	3	2	53	
Mean temperature	42.2	36.4	38.7	44.5	33.5	41	47	35.6	43.8	38.3	36.3	42.8	37.7		
Average of 10 years	38.3	38.7	39.1	38.5	40.5	44	36.1	40.4	40.8	40.3	41.8	41	42.6		

Deaths in General and Special Hospitals and Lunatic Asylums, 28.

DEATHS IN CLERKENWELL DURING THE THIRTEEN WEEKS, OR SECOND QUARTER OF 1856,
ENDING ON JUNE 28TH.

	April 5th.	April 13th.	April 19th.	April 26th.	May 3rd.	May 10th.	May 17th.	May 24th.	May 31st.	June 7th.	June 14th.	June 21st.	June 28th.	Total.	Births.
Deaths from all causes	31	27	29	20	27	22	29	29	46	29	19	30	27	365	563
Average of 10 years	33	32	29	28	26	28	29	28	21	25	26	29	27	361	
Small-pox .....	..	..	..	..	1	1	1	..	..	..	..	..	..	3	
Measles	2	3	3	1	1	..	1	1	1	1	3	..	..	18	
Scarlet fever .....	..	1	2	..	1	..	2	1	2	..	..	..	1	11	
Whooping-cough .....	..	2	..	..	2	1	2	1	..	1	3	2	1	15	
Diarrhoea .....	..	..	..	..	..	..	..	..	1	..	..	1	..	2	
Typhus	2	1	1	2	1	1	1	..	4	..	..	2	1	16	
Total	4	7	6	3	6	3	7	3	8	2	6	6	4	65	
Mean temperature	46.4	47.1	46	48.5	41.3	44.3	51.2	53.1	53.3	56.7	59.1	55.6	63.4		
Average of 10 years	45.2	45.5	46.8	45.5	47.8	50.1	51.9	55.5	56.2	57.3	57.6	59.2	60		

Deaths in General and Special Hospitals and Lunatic Asylums, 28.

DEATHS IN CLERKENWELL DURING THE THIRTEEN WEEKS, OR THIRD QUARTER OF 1856,
ENDING ON SEPTEMBER 27TH.

	July 5th.	July 12th.	July 19th.	July 26th.	August 2nd.	August 9th.	August 16th.	August 23rd.	August 30th.	Sept. 6th.	Sept. 13th.	Sept. 20th.	Sept. 27th.	Total.	Births.
Deaths from all causes	26	26	13	20	30	27	34	26	16	18	27	28	29	320	515
Average of 10 years.....	24	26	28	27	32	30	30	30	32	30	33	29	32	383	
Small-pox .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles	1	1	..	..	1	..	1	..	1	..	1	..	..	6	..
Scarlet fever	2	3	1	..	2	2	..	1	..	..	3	..	2	16	..
Hooping-cough	1	..	..	..	1	..	..	..	..	1	..	1	..	4	..
Diarrhea	1	..	1	1	3	6	7	7	3	2	3	3	1	38	..
Typhus .....	..	2	..	..	2	1	3	1	1	..	2	2	1	15	..
Total	5	6	2	1	9	9	11	9	5	3	9	6	4	79	
Mean temperature	59.2	57.6	60.1	64.2	67.6	66.1	66.9	57.8	61	57.5	58.7	53.7	52.9		
Average of 10 years.....	61.3	63.4	63	62	62.5	62.9	61.4	61.2	60.9	59.3	57.5	57.2	56.1		

Deaths in General and Special Hospitals and Lunatic Asylums, 23.

DEATHS IN CLERKENWELL DURING THE THIRTEEN WEEKS, OR LAST QUARTER OF 1856.

	October 4th.	October 11th.	October 18th.	October 25th.	Nov. 1st.	Nov. 8th.	Nov. 15th.	Nov. 22nd.	Nov. 29th.	Dec. 6th.	Dec. 13th.	Dec. 20th.	Dec. 27th.	Total.	Births.
Deaths from all causes	11	19	29	25	22	17	21	25	26	28	30	27	17	297	547
Average of 10 years	28	26	29	27	27	26	27	28	33	36	38	33	32	390	
Small-pox .....	..	2	..	..	..	..	1	..	..	..	..	..	..	3	
Measles .....	..	1	..	..	..	..	..	..	..	1	..	..	1	3	
Scarlet fever .....	..	2	3	1	2	1	2	2	..	1	1	1	1	17	
Whooping-cough .....	..	3	..	..	..	1	..	..	3	..	1	1	1	10	
Diarrhoea .....	..	1	1	..	..	..	..	..	..	..	..	..	..	2	
Typhus	1	1	3	1	2	..	1	..	1	..	..	..	..	10	
Total	1	10	7	2	4	2	4	2	4	2	2	2	3	45	
Mean temperature	55·3	54·3	53	51·2	44·7	43·4	38·3	42·3	39·3	35·5	51·3	38·8	35·7		
Average of 10 years	53·7	51·0	50·2	50	47·4	47·2	44·7	42·3	40·9	41·3	42·2	38·7	33·8		

Deaths in General and Special Hospitals and Lunatic Asylums, 22.

First Quarter (total deaths)	331	Principal zymotic in the first quarter	55
Second "	365	" second "	65
Third "	320	" third "	79
Fourth "	297	" fourth "	45
Deaths in hospitals, &c.	1313	Total	244
Total	1414		

It will be of interest to compare the general mortality of Clerkenwell with that of the other districts of the Metropolis, which can be done by examining the following table, the results in which have been obtained by dividing the average mortality of each district for the ten years 1847-56 by the number of inhabitants, so that the figures in the table represent the number of persons living to one death :—

MORTALITY TABLE,

Showing the number of persons living, to one death, in the districts of the Metropolis :—

Hampstead.....	56	St. Martin's in the Fields.....	39
London, City.....	56	Stepney.....	39
Lewisham.....	51	Chelsea.....	38
Hackney.....	48	Holborn.....	38
Hanover-square (St. George) ..	46	Newington.....	38
Kensington.....	46	Shoreditch.....	38
Westminster (St. James).....	46	St. George's in the East.....	36
Clerkenwell.....	45	St. Giles.....	36
Islington.....	44	Greenwich.....	35
Wandsworth.....	43	Poplar.....	35
St. Luke.....	42	Westminster.....	35
Marylebone.....	42	Rotherhithe.....	35
Strand.....	42	Bermondsey.....	34
Bethnal Green.....	41	St. George (Southwark).....	34
Lambeth.....	41	Whitechapel.....	31
London, East.....	41	St. Saviour.....	29
Pancras.....	41	London, West.....	22
Camberwell.....	40	St. Olave.....	16

Now, here we meet with a striking circumstance. Here we find that Hampstead—with its pure atmosphere, its beautiful trees and fields, its open gravelly soil, its great elevation, and its population of only five persons to an acre (see table)—has the same mortality as the City of London, with its atmosphere of smoke, its population of 128 persons to an acre, its impervious stone surface, its low elevation, and its proximity to a large ditch—the Thames. Here is a city, which formerly was overwhelmed with the plague, the scurvy, the most malignant fevers, the ague, the most virulent small-pox, &c., and where a casual observer would consider that all the elements of health were wanting, enjoying the same rate of mortality as a town which, in every respect, is naturally a most healthful spot. Here is a lesson of what sanitary measures can effect; and there is no question that the healthy state of the City of London is even greater than that of Hampstead, because in the case of the former there are many localities which increase out of proportion the general rate of mortality, as their sanitary state is not so good as that of the rest. There is no country place nor city in the world where the general sanitary condition is so good as in the City of London, and its low mortality is the reward of this.

According to the table, Clerkenwell is below the City of London in the scale, *i. e.* its mortality is proportionately higher.

Now, it is true that the population per acre is somewhat greater in Clerkenwell than in the City, but we may well set off against this the high level of our district, which is undoubtedly a most important element. But the fact is that in many parts of Clerkenwell the general sanitary arrangements are

exceedingly defective. I believe that to between one-half and one-third of the houses there are no drains opening into the sewers; the privies have large cesspools; the water-supply is none or very deficient; the dwellings of the poor are in a very filthy state; several streets have no sewers; many houses no privies; and there are no baths nor washing-houses.

Among the deaths in the district during 1856 are 244 from the principal of the zymotic diseases. The proportion of deaths registered as occurring from these diseases does not appear very large, amounting to about one-sixth of the whole number; but some of the deaths arising from them have been omitted, from my not having been enabled to ascertain the number of deaths from these diseases occurring during the year 1856 in the general and special hospitals. In the first quarter of the present year they amounted to 78, exclusive of the deaths occurring in the hospitals. These diseases have received a new name from the Registrar General, and have been formed into a new class, on account of their being especially important from destroying those who dwell under circumstances where sanitary measures are defective; *i. e.* they are preventible deaths. Wherever there are crowded apartments, imperfect or no drainage, offensive cesspools, dung-heaps resting against houses or in close proximity to inhabited rooms; wherever ventilation is impeded by the narrowness of courts and alleys; and wherever the houses and their inhabitants, living under these unfavourable circumstances, lose their self-respect, pay no regard to personal cleanliness, and consider a state of filth and offensiveness as their natural lot, there we find zymotic diseases in full force and frequency, not merely striking down for a time all within their reach, but carrying them off in undue proportion. Now, these zymotic diseases are of still greater importance than has ever been represented; and this, because those who are attacked with them do not simply recover or die as is commonly supposed; but I shall not be exaggerating, when I say that all those who even recover from these complaints are permanently injured. No doubt this injury may remain latent for years, but it appears at last, and then the death arising from it is entered under another head, by which its connexion with the primary cause is kept from sight. Of the deaths which occurred in the district during the first quarter of the present year, 78 arose at once from zymotic diseases.* In the same period 88 deaths from diseases of the respiratory organs are registered. Now, how many of these deaths, placed under the separate head, arose really from the remains of zymotic diseases? Undoubtedly a large number. A constant result of hooping cough is emphysema, or rupture of the air-cells of the lungs; this may lie latent for years, merely rendering an ordinary cough from cold more persistent and severe. But as years creep on, the cough arising from bronchitis becomes more and more frequent and severe, and at last carries off its victim; but in the Registrar's returns the real cause of the mortal ailment is ignored and entirely overlooked. A constant concomitant or consequent of measles is inflammation of the lungs, a result of which also is this emphysema, and hence the subsequent bronchitis and death. Again, scarlatina has a great tendency to disturb the glandular system, as evidenced in the swellings of the glands of the neck, the throat, and the abdomen. Hence, the impaired nutrition of the growing body; the marasmus, and finally consumption. Unquestionably, again, the large number of tubercular diseases (72 in

* Exclusive of those taking place in hospitals.

the quarter) and many others owe their origin to these same maladies. Where, again, is there a medical attendant or the parent of a family who has not been able clearly to trace the transition in children from a perfect state of health to a prolonged state of general debility terminating in some fatal malady, and this induced by an attack of some zymotic disease? How often also is the origin of drunkenness to be traced to the feeling of weakness and general debility, connected with these injuries to the body, forming an inducement to the habit of taking some stimulating liquid which shall temporarily raise the energies of the body to their natural standard?

These zymotic diseases, then, are important beyond measure, and are instrumental in the production of an amount of death and misery which cannot be estimated from the valuable returns of the Registrar General. And it obviously behoves those who are entrusted with the carrying out of the sanitary laws, to use their powers to the utmost to prevent their diffusion. The plague, the ague, the malignant forms of small-pox, and of spotted fevers, have vanished from this great metropolis; let the forms of zymotic disease still existing among us be expelled, or reduced to the utmost. Let the habitations of the poorer classes, who dwell in hundreds upon spots of ground not so large as should constitute a single tenement, be thoroughly cleansed, and kept clean. They often have neither time nor means of doing this for themselves. Let them have abundance of water. Provide baths and wash-houses, that they may have every inducement to keep themselves clean. Appoint public washerwomen to wash the linen of those who are unable to wash it themselves, whereby the cost of allowance to distressed families, and of the cases admitted into the fever hospitals, may be prevented. Let the law be carried to its full extent in regard to the provision of each tenement with its proper drainage, its separate closet, and the removal of surrounding noxious emanations from local sources of contamination to the air. Erect model lodging-houses for the poor, *i. e.* to be let at rents within the reach of those who really form the poor. By attending to these points, the amount of mortality will be diminished; the hot-beds of disease, from which the rich are supplied, will cease to exist; the poor-rate will fall,* and the population will be physically and morally improved. Keep a vigilant eye upon those manufactories which have recently and are still being brought into the district, and which contaminate by their noxious exhalations the small amount of pure air allotted to the large number of inhabitants. The above remarks upon the prevention of the diffusion of zymotic diseases have special reference to the poor; but there is one point which concerns both rich and poor. It appears to be a common notion that everyone must have the more ordinary eruptive zymotic diseases, which I believe produce a very large proportion of the total mortality; for we find an almost complete apathy in general regarding the exposure of persons to the sources of infection. Most parents are rather favourable to anyone coming from an infected house, thinking, perhaps, that the season is very suitable for their children to have the measles or scarlet fever. But why should this be? Why should children or adults have the measles or scarlet fever any more than the itch or venereal disease? Both are common, the

* At present the poor-rates are raised by the parish having to pay the expenses of afflicted poor persons, whose misery has, in most instances, arisen from defective sanitary arrangements, the remedying of which ought to have been effected at the expense of landlords who derive their substance from the miseries of the poor.

latter especially so ; although the former is not nearly so frequent as formerly, because everyone who has it feels a horror of and is ashamed of it, and everyone who knows the fact avoids him ? But why this horror of the itch, which does the body no harm ? and why is there no terror at zymotic diseases, which stamp their mortal mark upon all who are affected with them ? Why this seclusion from society, and this washing, or even destruction, of clothes in the case of the itch, and the perfectly uninterrupted intercourse of those whose clothes are saturated with a vile and fatal poison as in the case of zymotic diseases ? In former times the itch abounded among all classes, and even reached royalty ; in our times zymotic disease still does so. Let us, then, shrink with horror at the name of zymotic disease as we do at that of the itch. Let no one go abroad who has suffered from these complaints in clothes which have not been thoroughly purified by either washing or baking.* Let those who will continue to go out under such circumstances feel that they are committing an enormous crime, for there can scarcely be a greater crime than that of secretly infecting a fellow-creature with a mortal disease ; it differs only from that of secret poisoning in being done more frequently and without fear of punishment. A strikingly reckless means by which infectious diseases are propagated is the conveyance of infected persons to hospitals, &c., in public conveyances. The evils resulting from the practice are too well-known to require further notice ; but it is truly astonishing that an enlightened Parliament should not long since have legislated for its prevention.

The number of deaths registered as occurring from zymotic diseases in Clerkenwell during the first quarter of the present year appears small, viz., 78, almost exactly one-fifth ; but, as I have stated, this number gives no idea of the real number dying of these diseases, but only those who die from them at once.

In all England about 100,000 individuals die directly from these maladies. But we obtain a very slight idea of the degree to which the population is kept down, by saying that even 100,000 persons die annually at once of zymotic diseases, for the sum is one of compound interest: many of those who die would have become parents of families, and all these families are pre-destroyed.

Let us compare this mortality with that from cholera. Every one has heard of the cholera ; the very name strikes terror, and this terror has undoubtedly been the principal means of the institution of legal sanitary proceedings. But the mortality produced by cholera is quite insignificant in comparison with that arising from other zymotic diseases. The year in which cholera produced the greatest mortality in England was 1849, when 53,273 persons died of it. But even in this same year, 1849, 84,496 persons died at once of the other zymotic diseases ; and, when we recollect that the annual mortality from cholera, or other diseases registered under that head, amounts to about 1000, whilst the annual mortality arising from the other zymotic diseases is about 90,000, we see that, in fact, the cholera is a comparatively insignificant disease.

But the cholera has still been significant, and its ravages have done service ; for it mostly happens that it abounds in those localities in which sanitary conditions are in the most unsatisfactory state ; and its course being short

* I recommended the Vestry to provide some suitable form of bakehouse for purifying articles of clothing, bedding, &c., which would be injured by washing.

and rapid, and its visitations occasional, have rendered its fatal nature strikingly obvious, and set in action means for remedying those unfavourable sanitary conditions which produce greater ravages when it is absent from among us. Again, let us compare the mortality from cholera and the other zymotic diseases with that of the British army in the late war with Russia. The mortality of the British army in the Crimea was great; Parliament sat night after night to discuss its cause; committees were formed and engaged for months in the same occupation; and the whole country was in an uproar about it. But, why this? for more human beings lose their lives in England every year than British soldiers perished in the Crimea during the whole war. And the cause in which the brave soldiers lost their lives was noble, and for the good of mankind; whilst those who die here of zymotic diseases lose their lives in no cause whatever, neither are the circumstances of their deaths investigated; and this notwithstanding even their vastly larger number.

Now, it might be remarked that it is easy to say what ought to be done, but far more difficult to show how it may be practically carried out. This, I think, is a more apparent than a real difficulty.

There can be no question that improving the dwellings of the poorer class, and rendering their sanitary conditions more favourable, will diminish their mortality. Now, this improvement will be effected at the expense of landlords, who in most cases can well afford to pay: the expense cannot come from the public rates. Here then will parentless families be kept from the workhouse; here then will what would have been childrenless parents have their children living, who may keep them from the workhouse in their old age. This will diminish the poor-rates; and an equivalent increase of the Vestry-rate will suffice to effect these few improvements, which must be done by the public purse. But, it may be said, what is the use of diminishing one rate if another be proportionately increased? Now, the increase will be but temporary, for the benefit will be permanent. It has been shown over and over again, that when once the expense of properly arranging the sanitary conditions, especially of the poor, with whom they are most defective, has been accomplished, the mortality is permanently diminished, and the benefit lasting. And, mind! the greatest mortality falls among the poor, principally the inhabitants of courts and alleys, and those living in over-crowded houses.

Let us then use every endeavour to reduce the amount of this fearful mortality. Let us carry out fully the provisions of the Local Management Act. Let each person breathe as pure air as possible. Let those manufacturers who are doing a thriving business, but poisoning their neighbours, be compelled to adopt every possible means to prevent contaminating the air. Let everyone who has suffered from any of the infectious zymotic diseases take care that he exposes himself not unduly until his garments have been purified. Let parents take care that they do not send their children who have just recovered from one of these pests to school, or to mix with other children, until their garments have been properly purified.*

Let proper aid also be afforded to the needy poor to do these things, where their own means are insufficient for the purpose. In one of my weekly reports to the Vestry, I advised that where zymotic diseases were present, a certain quantity of charcoal should be supplied for the use of the poor, under a medical certificate; for this substance has remarkable power in

* Schools form very general media for the propagation of infectious and contagious diseases among children.

absorbing noxious emanations, and is used for this purpose in hospitals, dissecting rooms, &c.

It might certainly happen, that even were every precaution taken, a few cases of zymotic disease would occur; but this is surely no reason why preventive means should not be adopted. As well might the inhabitants of the district throw themselves off the top of a high scaffolding, because a few labourers fall off accidentally, in spite of ordinary care. It might also be argued, that the chance of persons becoming infected with zymotic diseases is great, and that children suffer less from them than adults; therefore, that it is well for every child to be exposed to infection, and thus to pass through the disease when young. But these arguments are surely false. Undoubtedly the chance of becoming infected is great, because no precautions are taken to prevent it. But wherever, in special instances of the great prevalence of, or great mortality from, these diseases, proper precautions have been taken, the prevalence and mortality have both been prevented. Neither do children suffer less than adults; in fact, I believe the reverse to be the case. At all events, children are less easily and successfully treated, and the chance of infection diminishes with the increase of age.

The principal points then to which I beg to direct the attention of the Vestry, with a view to the amelioration of the sanitary state of the district, are these :—

1. The improvement of the drainage, by making sewers and drains, especially in the southern portion of the district.
2. The improvement of the privies, so many of which are connected with cesspools, and no or imperfect drains.
3. The improvement of the condition of the houses by cleansing, lime-whiting, &c., whereby infection may be destroyed, and poor families may be brought up in the midst of cleanliness and decency, instead of amidst filth and disease.
4. The house-to-house visitation, by which defects may be surely discovered and speedily remedied.
5. The more free supply of water to the district, by the provision of suitably capacious receptacles, or a constant supply.
6. The reduction of the large amount of smoke thrown into the air by the various manufactories, &c.
7. The removal of the bodies from the vaults of the churches.
8. The suppression of the nuisances arising from several manufactories which evolve noxious vapours.
9. The improvement of the management of the cow-yards in the district.

The inhabitants generally, particularly those who are parents, I would advise to consider the great sources of mortality and wretchedness. Think over the misery brought upon the children by disregarding those sanitary influences which favour the spread of zymotic diseases. Use your best endeavours to prevent them from catching diseases which will surely bring such misery and mortality—either in your own case or your neighbour's; be able to satisfy yourselves that such sickness and mortality have not arisen from your own neglect.

Now I have shown that a very large number of the inhabitants are living under very unfavourable circumstances, both as to health and comfort. But all these are remediable by the Vestry under the Local Management and

Nuisances Removal Acts. It is a common notion, that the poorer classes really prefer a state of dirt and filth, have no objection to the foul odour of drains, &c. But this is an entire mistake; they have no power to remove themselves from these conditions. The enemies of the poorer classes are the landlords, who know well that proper lodgings for the really poor do not exist. They know also that if they buy at a cheap rate any old premises, not fit for a pig-sty, and let them cheaply, they will be sure to find tenants. But the Vestry, who have undertaken to carry out the above Acts, will, it is to be hoped, speedily remove such unfavourable conditions. In most of the districts of the Metropolis, a house-to-house visitation is accomplished, and all the nuisances set right in order. In Clerkenwell, only those cases are interfered with which have given rise to some excess of mortality, or which have been found out by chance visitation, or, very rarely, after some complaint has been made. It is to be hoped that the house-to-house visitation will be adopted in this district, and that to each inhabitant will be enforced their share of health and comfort.

NUISANCES OBTIATED.

During the year 1856, 350 nuisances have been remedied in the district. These consisted of choked-up drains, which have been cleared out; of offensive cesspools, which have been filled up, and drains made into the sewers; of accumulations of foul bones and fat, which have been removed; and of offensive privies, which have been cleansed, panned, and trapped. Of these 350 nuisances, 139 occurred in the southern, and 211 in the northern division of the district.

The removal of these nuisances must unquestionably have added greatly to the comfort of those who were living in the midst of them, and must also have contributed to the improvement of the general sanitary condition of the district. But the number is small, and it is melancholy to think, that at this rate, the whole of the nuisances of this kind still existing in the district will not be removed until the lapse of ten years. And I dare hardly venture to contrast our progress in this respect with that of one of the neighbouring districts, viz., Islington, in which 1273 nuisances were amended in one quarter alone of 1856!

During the quarter of the present year ending on March 25th, 38 of these nuisances have been removed in the district; and 147 premises have been visited by myself, in regard to the existence of nuisances, during the past year of my tenure of office.

In regard to the law of nuisances and injury to health, the following principal points should be widely known.

Anything which forms a nuisance, or is injurious to health, *shall* be done away with.

Nuisances are thus defined:—

1. Any premises in such a state as to be a nuisance or injurious to health;
2. Any pool, ditch, gutter, water-course, privy, urinal, cesspool, drain, or ash-pit, so foul as to be a nuisance or injurious to health;
3. Any animal so kept as to be a nuisance or injurious to health;
4. Any accumulation or deposit which is a nuisance or injurious to health.

Even if a nuisance has been removed, a penalty may be inflicted, if it is

likely to recur. Where a nuisance has been proved to exist, a fine of from £2 to £5 is inflicted ; upon a second conviction, of £10 ; and double the sum each succeeding time. A nuisance need not be injurious to health : if there be only "smells offensive to the senses, that is enough, as the neighbourhood has a right to fresh and pure air." "It is not necessary that a smell be unwholesome, if it renders the enjoyment of life and property uncomfortable." "It is also immaterial how long the nuisance may have prevailed, for no length of time will legitimate a nuisance." (The law has thus been laid down by judges in actions.)

In over-crowding of houses, an order is to be made for its abatement, with a fine of £2.

Any article of food unfit for food shall be seized or so disposed of as to prevent its being exposed for sale, or used as food, with a penalty of £10. The magistrate may order the provision of sufficient privy accommodation, means of drainage, or ventilation, or the making safe and habitable, or the paving, cleansing, whitewashing, or purifying premises which are a nuisance or injurious to health.

Nothing can be more in accordance with reason and justice than these laws. No answer can be given to the question, why the poorer classes should be *obliged* to live where all or most of them are disregarded. That they are obliged follows from the fact, that they cannot at present do otherwise.

In conclusion, I must express my thanks to the Vestry and their energetic officers, for the kindness and urbanity which I have experienced at their hands during the past year, and my hope that the same may continue.

